

## CLAIMS

*What is claimed is:*

1. A method of forming a fire-retardant wood-based composite, comprising the steps of:

A. providing a green wood furnish;

5 B. treating the green wood furnish with an amount of a phosphate/borate fire retardant treatment effective to increase the fire retardancy of the resulting wood-based composite, compared to the fire retardancy of the corresponding wood-based composite lacking the fire retardant;

10 C. optionally, drying the treated green wood furnish to a moisture content suitable for fabrication of the wood-based composite;

D. blending the treated green wood furnish with a binder; and

E. binding the green wood furnish with said binder to form a fire-retardant wood based composite.

15 2. A product formed according to the process of claim 1.

3. The method of claim 1, further comprising, during or after said fire retardant treatment, applying a water repellant material to said green wood furnish to form treated wood particles.

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4. The method of claim 3, wherein said fire retardant treatment and said water repellant are applied from a single emulsion.

5. The method of claim 3, wherein said water repellant material is a paraffinic wax.

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6. The method of claim 3, wherein said water repellant is slack wax.

7. The method of claim 1, wherein said green wood furnish comprises aspen flakes.

8. The method of claim 1, wherein said green wood furnish has a moisture content of from about 60% to about 100%, based on dry wood weight, just before said fire retardant applying step.

5 9. The method of claim 1, wherein said phosphate is an inorganic phosphate.

10. The method of claim 1, wherein said fire retardant treatment is applied from an aqueous dispersion.

10 11. The method of claim 1, wherein said binder is a phenolic resin.

12. The method of claim 1, wherein said binder is a urea-formaldehyde resin.

15 13. The method of claim 1, wherein said binder is a catalyst-curable phenol-melamine-formaldehyde resin.

14. The method of claim 13, wherein said fire retardant treatment is present in an amount effective to at least partially catalyze the cure of said binder.